

INTERNATIONAL SEARCH REPORT

PCT/GB2004/004944

| A. CLASSIFICATION OF SUBJECT MATTER IPC 7 H01L21/18 H01L21/266 | | | | | | | |
|--|---|-----------------------|--|-----------------------|---|---|------|
| According to International Patent Classification (IPC) or to both national classification and IPC | | | | | | | |
| B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC 7 H01L | | | | | | | |
| Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched | | | | | | | |
| Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data, PAJ, INSPEC, COMPENDEX | | | | | | | |
| C. DOCUMENTS CONSIDERED TO BE RELEVANT <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 2px;">Category</th> <th style="text-align: left; padding: 2px;">Citation of document, with indication, where appropriate, of the relevant passages</th> <th style="text-align: left; padding: 2px;">Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td style="text-align: left; padding: 2px;">Y</td> <td style="text-align: left; padding: 2px; vertical-align: top;"> QIAN Y H ET AL: "Three band-gap QW intermixing in InP/InGaAs/InGaAsP system for monolithically integrated optical switch" LASERS AND ELECTRO-OPTICS SOCIETY ANNUAL MEETING, 1998. LEOS '98. IEEE ORLANDO, FL, USA 1-4 DEC. 1998, PISCATAWAY, NJ, USA, IEEE, US, vol. 2, 1 December 1998 (1998-12-01), pages 194-195, XP010317604 ISBN: 0-7803-4947-4 cited in the application page 195, line 3 - line 18 ----- -/- </td> <td style="text-align: left; padding: 2px;">1-23</td> </tr> </tbody> </table> | | Category | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. | Y | QIAN Y H ET AL: "Three band-gap QW intermixing in InP/InGaAs/InGaAsP system for monolithically integrated optical switch" LASERS AND ELECTRO-OPTICS SOCIETY ANNUAL MEETING, 1998. LEOS '98. IEEE ORLANDO, FL, USA 1-4 DEC. 1998, PISCATAWAY, NJ, USA, IEEE, US, vol. 2, 1 December 1998 (1998-12-01), pages 194-195, XP010317604 ISBN: 0-7803-4947-4 cited in the application page 195, line 3 - line 18 ----- -/- | 1-23 |
| Category | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. | | | | | |
| Y | QIAN Y H ET AL: "Three band-gap QW intermixing in InP/InGaAs/InGaAsP system for monolithically integrated optical switch" LASERS AND ELECTRO-OPTICS SOCIETY ANNUAL MEETING, 1998. LEOS '98. IEEE ORLANDO, FL, USA 1-4 DEC. 1998, PISCATAWAY, NJ, USA, IEEE, US, vol. 2, 1 December 1998 (1998-12-01), pages 194-195, XP010317604 ISBN: 0-7803-4947-4 cited in the application page 195, line 3 - line 18 ----- -/- | 1-23 | | | | | |
| <input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. | | | | | | | |
| <input checked="" type="checkbox"/> Patent family members are listed in annex. | | | | | | | |
| ° Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed | | | | | | | |
| *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. *S* document member of the same patent family | | | | | | | |
| Date of the actual completion of the international search 2 March 2005 | | | | | | | |
| Date of mailing of the international search report 11/03/2005 | | | | | | | |
| Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016 | | | | | | | |
| Authorized officer Meacher, D | | | | | | | |

INTERNATIONAL SEARCH REPORT

PCT/GB2004/004944

| C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT | | |
|--|---|-----------------------|
| Category ^a | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
| Y | <p>MIYAZAWA T ET AL: "COMPOSITIONAL DISORDERING OF INO.53GA0.47AS/INO.52AL0.48AS MULTIQUANTUM WELL STRUCTURES BY REPETITIVE RAPID THERMAL ANNEALING" JAPANESE JOURNAL OF APPLIED PHYSICS, PUBLICATION OFFICE JAPANESE JOURNAL OF APPLIED PHYSICS, TOKYO, JP, vol. 28, no. 5, PART 2, 1 May 1989 (1989-05-01), pages L730-L733, XP000030441 ISSN: 0021-4922 cited in the application page L730 - page L731</p> <p>-----</p> | 1-15, 17-23 |
| Y | <p>LI E H: "Advances in intermixed quantum well devices" ELECTRON DEVICES MEETING, 1998. PROCEEDINGS. 1998 IEEE HONG KONG HONG KONG 29 AUG. 1998, PISCATAWAY, NJ, USA, IEEE, US, 1998, pages 60-65, XP010318832 ISBN: 0-7803-4932-6 page 61, paragraph 3</p> <p>-----</p> | 1,19,22, 23 |
| Y | <p>UTPAL DAS ET AL: "TAILORING OF ELECTRON AND HOLE ENERGIES IN STRAINED GAASP/ALGAAS QUANTUM WELLS USING FLUORINE-IMPURITY-INDUCED LAYER DISORDERING" APPLIED PHYSICS LETTERS, AMERICAN INSTITUTE OF PHYSICS, NEW YORK, US, vol. 60, no. 2, 13 January 1992 (1992-01-13), pages 210-212, XP000257167 ISSN: 0003-6951 page 210, left-hand column</p> <p>-----</p> | 10 |
| Y | <p>SOREL M ET AL: "Monolithic integration of InGaAs/AlGaInAs mach-zehnder interferometers using quantum well intermixing" LEOS 2003. 16TH. ANNUAL MEETING OF THE IEEE LASERS & ELECTRO-OPTICS SOCIETY. TUCSON, AZ, OCT. 27 - 28, 2003, ANNUAL MEETING OF THE IEEE LASERS AND ELECTRO-OPTICS SOCIETY, NEW YORK, NY : IEEE, US, vol. VOL. 1 OF 2, 26 October 2003 (2003-10-26), pages 439-440, XP010676256 ISBN: 0-7803-7888-1 page 439</p> <p>-----</p> | 16 |
| | | -/- |

INTERNATIONAL SEARCH REPORT

PCT/GB2004/004944

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| A | PIVA P G ET AL: "BANDGAP TUNING OF SEMICONDUCTOR QUANTUM WELL STRUCTURES USING ION IMPLANTATION" SUPERLATTICES AND MICROSTRUCTURES, ACADEMIC PRESS, LONDON, GB, vol. 15, no. 4, 1994, pages 385-389, XP000608697 ISSN: 0749-6036 abstract; figure 1 ----- | 1-23 |
| A | US 6 027 989 A (POOLE ET AL) 22 February 2000 (2000-02-22) figures 2,3,6-9 ----- | 1-23 |

INTERNATIONAL SEARCH REPORT

PCT/GB2004/004944

| Patent document cited in search report | Publication date | | Patent family member(s) | | Publication date |
|--|------------------|----|-------------------------|--|------------------|
| US 6027989 | A 22-02-2000 | DE | 69602429 D1 | | 17-06-1999 |
| | | DE | 69602429 T2 | | 23-09-1999 |
| | | EP | 0812485 A1 | | 17-12-1997 |
| | | CA | 2212751 A1 | | 06-09-1996 |
| | | WO | 9627226 A1 | | 06-09-1996 |